THE GOLD AND SILVER SPOTTER

National Weather Service, Reno, NV

Volume 1, Issue 1 January 2011

Updating Information

We have begun calling each of you to make sure we have your proper contact information and also an email address on file. We still have not been able to reach some of you, and would appreciate you taking the time to contact us if you have not yet heard from us. We are looking to verify if you are still interested in being a spotter and if so, make sure your information is up-to-date. If you are receiving this newsletter in the mail and not via email, we do not have a current email address for you.

We will be starting quarterly newsletters and are wanting to email them instead of mail them to save postage and paper. In addition, these newsletters will be posted to our webpage under the SkyWarn Spotter Section: http://www.wrh.noaa.gov/rev/spotter/spotter.php

The bonus of receiving your newsletter via email is that they will always be in full color! Don't worry, if you do not have an email address, we can still mail you your newsletter.

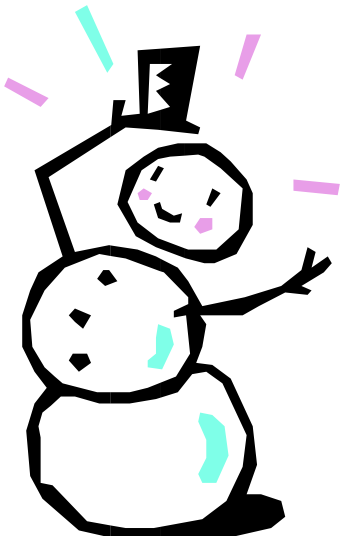
When you contact us, please be sure to verify your mailing address, your email address, and the best phone number to reach you at.

We can be reached either by email (Dawn.Fishler@noaa.gov or Wendell.Hohmann@noaa.gov), by calling the spotter hotline, or by sending a note to us in the mail (2350 Raggio Pkwy, Reno, NV 89512).

Thank you much for you help with this matter!

Recent NWS Reno Changes

There have been many changes at the Reno NWS office this past year, with promotions and retirements. This past year, 6 new forecasters have joined the staff to replace those who moved on. In addition our Meteorologist-In-Charge, who heads up the Reno office, took a temporary assignment in D.C. and will be gone until at least this summer. We will have an acting MIC during this period. Please welcome the new staff to the office! We look forward to working together with you and using your spotter reports to help save lives!



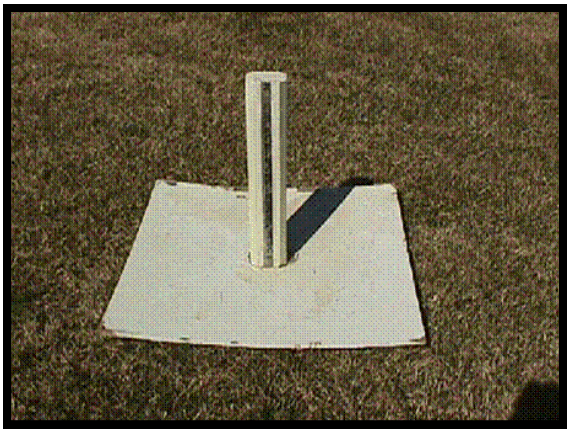
Enjoy the Snow!

Our Mission:

"The National Weather Service (NWS) provides weather, hydrologic and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community."

Inside this issue:

How to Properly Measure Snowfall



What you're providing:

Snowfall information during and after a storm.

What you'll need:

1. A snow-board (a 2x2 ft plywood board or a plastic cutting board) with a ruler extending up from the center

-If this is not possible, try to measure snowfall in the most flat, and most representative area possible. Be sure to move snow away from your measurement location to see whether the snow is resting on top of grass, so the depth of the grass is not included in our measurement. Avoid pavement or concrete, and high traffic areas.

2. If using a snow-board, place the board in a flat area at least 10 feet away from tall objects.

3. Measure several spots on the board (to the closest 1/10th of an inch), then take an average of these measurements.

4. Once the measurement is taken, clean off your snow-board and place on top of the snow remaining on the ground.

Some issues that you might face…

1. **Wind** accompanies the storm and blows your snow-board, or measurement area, bare, while piling snow in other locations.

-If this occurs, try to find an area that seems representative of the snowfall. This will probably be in a location that is not terribly drifted. Also, take several measurements, then average the results. Try the best you can as in this scenario getting a very accurate result is quite difficult.

If you don't have a snowboard…

1. Measure snow in a relatively flat area

2. Measure in several different spots

3. Average your snowfall total

More Snowfall Measurement Details

There are three values that should be recorded when reporting frozen precipitation: snowfall, snow depth, and snow water equivalent. Snowfall is the amount of snow that has fallen since the previous observation. Snow depth is the total depth of snow, sleet, or ice on the ground at the time of observation. Snow water equivalent is a measure of the amount of water in a sample of melted snow.

Snowfall measurements are to be taken at least once every 24 hours, or when the storm is over; whichever comes first. Snowfall is a measurement of the average depth of new snow that has occurred since the last measurement, and is measured in whole inches and tenths (4.1, for example). Always clear the snowboard after the observation is taken.

Snow depth can be reported when reporting new snowfall and is rounded to the nearest whole inch. Snow depth measurements are taken from either a permanently mounted snow stake or from the average of several locations where the snow has been undisturbed (least affected by the wind or obstacles). If faced with a situation where part of the location is bare, and part is snow covered, take an average of the bare ground (0 inches) and the snow covered ground. If less than half of the location is covered by snow, snow depth is recorded as a trace (T), even if significant snow depth still exists in snow covered spots.

If you have an 8-inch standard precipitation gage, snow water equivalent measurements can also be taken when snowfall is reported. Melt what has fallen in the 8-inch gage and then pour this into the standard 2-inch gage and take a measurement using an official NWS rain gage ruler. This goes above and beyond your role as a spotter, and requires specific equipment, so please do not feel you have to take snow water equivalent measurements.

What we find the most important at the NWS office is getting new snowfall reports with details as to when the snow began and ended. Also, if they precipitation type changes (i.e. from rain to snow) it is also good to give us a call and report this, so we have a better understanding of what is happening with the storm.

Cold Related Injuries

Wind Chill: How cold it feels to exposed skin, not the actual temperature. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature. Animals are affected by wind chill; however, cars, plants, and other objects are not.

Frostbite: Damage to the body tissue caused by extreme cold. A wind chill of –20° Fahrenheit will cause frostbite in just 30 minutes. Frostbite causes a loss of feeling and a white or pale appearance in extremities, such as fingers, toes, ear lobes, or the tip of the nose. If symptoms are detected, get medical help immediately! If you must wait for help, slowly re-warm affected areas. However, if the person is also showing signs of hypothermia, warm the core of the body before extremities.

Hypothermia: A condition brought on when the body temperature drops to less than 95°F. It can kill. For those who survive, there are likely to be lasting kidney, liver, and pancreas problems. Warning signs include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and apparent exhaustion. Seek medical care immediately!

If Medical Care is not Available: Warm the person slowly, starting with the body core. Warming the arms and legs first drives cold blood toward the heart and can lead to heart failure. If necessary, use your body heat to help. Get the person into dry clothing and wrap in a warm blanket covering the head and neck. Do not give the person alcohol, drugs, coffee, or any other hot beverages or food. Warm broth is the first food to offer.

Adapted from: *Winter Storms: The Deceptive Killers,*

NOAA, FEMA, and the American Red Cross

http://www.weather.gov/os/winter/resources/Winter_Storms2008.pdf

Injuries Related to Cold Stats:

* 50% happen to people over 60 years old
* More than 75% happen to males
* About 20% occur in the home

Record Low Temperatures Set Across Western NV and the Eastern Sierra in November

A very cold air mass moved into the region the week of Thanksgiving sending many location into record low territory. A secondary shot of cold air moved into the area a few days later. Records were either set or tied for the sites in the table below. Data is arranged as follows: record/year record was set, observed temperature (R or T, where R=New Record and T=Tied Record). Reno did not set any records, but came within a degree on Nov 25 with a low of 10 degrees.

	Nov 24	Nov 25 (Thanksgiving)	Nov 26	Nov 29
Carson City, NV		6/1993, 3(R)	7/1993, 7(T)	
Virginia City, NV	13/1993, 6(R)	14/1993, 7(R)	13/1990, 9(R)	
Susanville, CA	2/1993, 2(T)			9/1976, 9(T)
Portola, CA	2/1966, -4(R)	0/1929, -2(R)	4/1965, 3(R)	0/1975, -4(R)
Truckee, CA	-1/1966, -9(R)	1/1966, -13(R)	-3/1965, -4(R)	-12/2004, -12(T)
South Lake Tahoe, CA	5/1978, -8(R)	2/1978, -7(R)		-6/1975, -9(R)
Tahoe City, CA	3/1931, 0(R)	5/1931, 5(T)		4/1975, 4(T)
Markleeville, CA				4/1994, 1(R)
Bridgeport, CA		-4/1978, -8(R)		-13/1965, -17(R)
Mammoth Lakes, CA				-7/2004, -7(R)

Outlook for the 2010-11 Winter

by Brian F. O'Hara

What does the rest of the winter have in store for us here in western Nevada and the eastern Sierra? Well, that's kind of hard to say. We were under the effects of an El Niño last winter and we have transitioned into a strong La Niña this winter.

As you may know, El Niño conditions refer to warm water over the tropical Pacific and extending northward along the west coast of North America (and southward along the west coast of South America). La Niña is the opposite of El Niño in that La Niña is associated with relatively cool water along the equator and northward along the west coast of North America.

During a La Niña event a ridge of high pressure develops over the northern Pacific Ocean and this high pressure ridge steers storm systems to the north over the Pacific Northwest (**Fig. 1**). This is why the Pacific Northwest typically sees wetter conditions during La Niñas. The cloudy conditions also causes temperatures to be cooler than average.

In contrast, La Niñas tend to bring warm dry weather to the southwestern U.S. (including southern California) due to the decrease in storminess (**Figs. 2 and 3**). But what about the central Sierra and western Nevada? We are between these two areas of cooler wetter conditions in the Pacific Northwest and warmer drier conditions in southern California. As a result, there is little correlation between La Niña (or El Niño for that

Outlook for the 2010-11 Winter Continued

matter) and weather conditions in our region.

This winter we continue to expect near normal precipitation and temperatures for western Nevada and the eastern Sierra. We will see snowstorms move across our region and we have already seen above normal snowfall in the Sierra . However, still expect near normal to slightly above normal precipitation for our region this winter as a result of the La Niña conditions this winter. But getting even normal precipitation will definitely help alleviate the drought conditions that much of the western U.S. as seen the last few years.

(Figures 1, 2, and 3 are courtesy of the NOAA Climate Prediction Center)

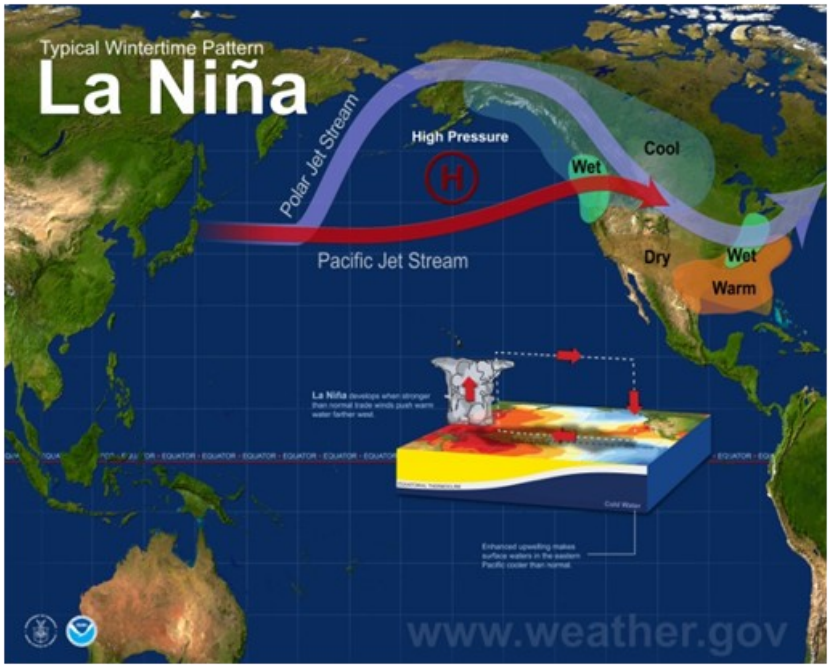
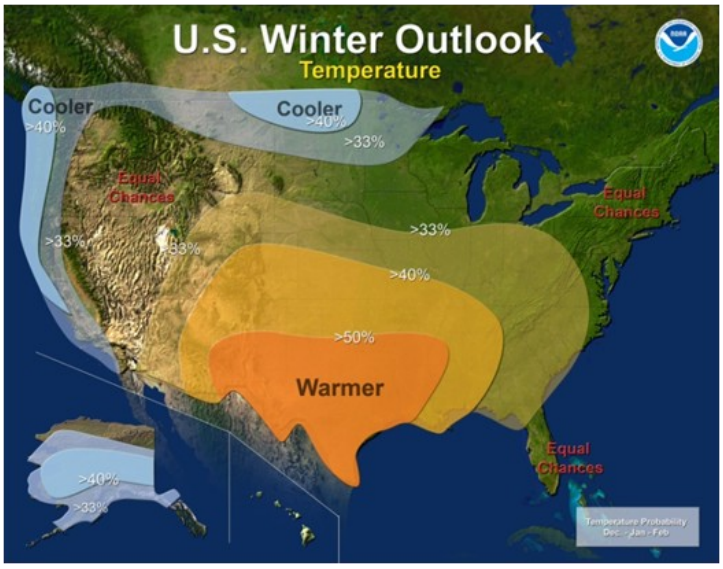


Figure 1: Left
Figure 2: Bottom Left
Figure 3: Bottom Right

Note: Figures 2 and 3 are the valid outlook for December, January, and February.



Snowy November and December

The end of November and the month of December brought plenty of snow to the Sierra and portions of Western Nevada. Many sites saw above normal snowfall and some even set snowfall records for the month.

	Nov 2010	Dec 2010	Average Nov	Average Dec	Nov Record Before 2010	Dec Record Before 2010	Year of Record: Nov	Year of Record: Dec	Number of Years Records Kept
Carson City, NV	8.8	13.8	1.5	5.6	15.0	30.0	1935	1941	87
Dagget Pass, NV	57.0	64.0	8.9	22.3	37.0	74.0	1994	1996	22
Glenbrook, NV	29.0	32.0	7.5	16.2	29.0	61.1	1960	2009	66
Boca, CA	52.7	32.2	8.4	21.8	42.0	71.0	1985	1952	74
Lee Vining, CA	21.3	29.7	3.6	14.0	26.5	53.5	1994	2002	22
Mammoth Lakes, CA	48.0	138.0	12.9	38.6	47.0	87.0	1994	2002	17
Tahoe City, CA	70.5	54.5	15.4	36.1	74.0	114.0	1994	1931	101
Reno, NV	2.8	6.8	2.1	4.7	16.5	25.6	1985	1971	73

Top 10 Weather Events of 2010

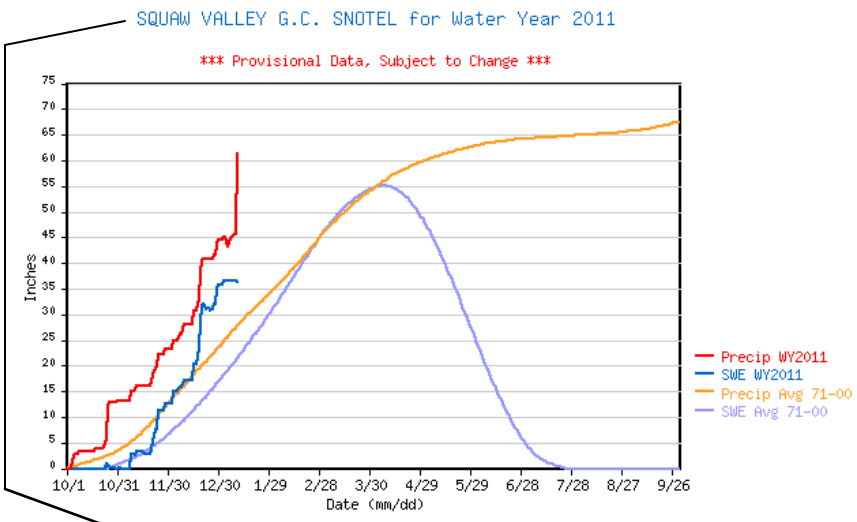
(In Chronological Order)

1. January 17-23—Series of Winter Storms and Record Low Pressure for Reno. Several storms moving through the region produced heavy snow in the Sierra and significant rain and wind in lower elevations of eastern California and parts of western Nevada. In the Sierra above 7000 feet, between 4 and 8 feet of snow fell during this six day span, while 2 to 4 feet fell in the Lake Tahoe basin. At the Reno Airport on the 21st, the Sea Level Pressure dropped to 28.91 inches, which was the lowest recorded pressure on record.
2. February 20-21—Very Heavy Mesoscale Snow Band. A cold air mass, combined with a stationary low pressure and coupled jet stream set up a narrow band of very heavy snow which began the evening of the 20th and continued through the morning of the 21st. Snowfall totals of 1 to 2 feet extended from the Sierra Valley in eastern California southeast across much of the Reno vicinity, to Silver Springs in West Central Nevada. Snow totals decreased quickly to 6-12 inches from south Reno to Virginia City, Dayton and Fallon, with 2 inches or less in Carson City and the Tahoe basin.
3. April 27 Windstorm. An unusually strong jet stream for late April produced damaging winds in portions of western Nevada and eastern California. Gusts of 70 to 85 mph, with local gusts near 100 mph, were reported from central Mono county northward across the Carson City-Minden and Reno-Sparks vicinities. Damage to fences, roofs, power lines and trees was reported in these areas, along with two overturned tractor trailers on Highway 395 north of Reno.
4. July 5-August 8, 90 degree day streak tied at Reno Airport. Another warm summer prevailed across western Nevada. Although extreme heat waves did not occur in July or August, the Reno Airport tied a record of 35 consecutive days with the temperature reaching or exceeding 90 degrees.

Continued on Back page

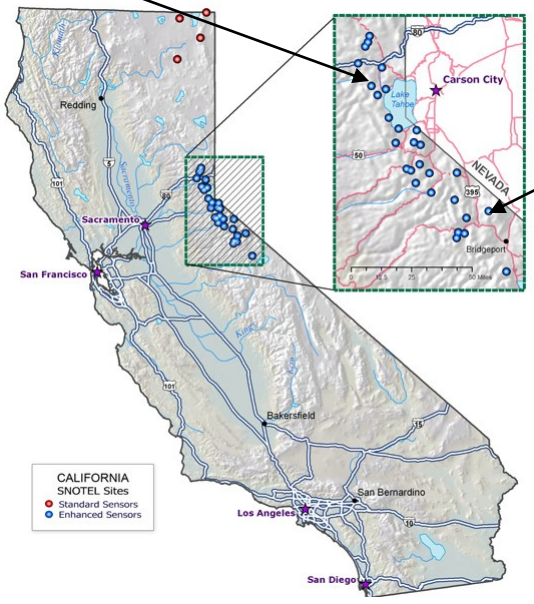
Snow Water Equivalent Well Above Average

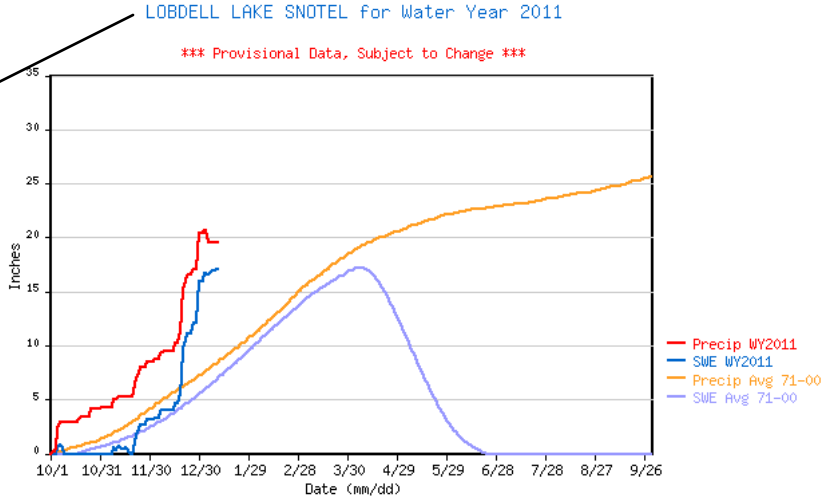
The copious amounts of snow that fell during the past 2 months have brought the snow water equivalent (SWE) in the Sierra snowpack to well above normal. The snow water equivalent is the amount of liquid in inches that is present if the current snow pack was melted. Most sites in the Tahoe Basin are 180-250 percent of normal with the Mono Basin 200-275 percent of normal. Below are two examples from SNOTEL sites, the top one in the Tahoe Basin and the bottom one in the Mono Basin. The red line is showing the liquid precipitation that has fallen in water year 2011 (which starts Oct 2010), while the dark blue denotes the snow water equivalent of the snow pack during the same time frame. The yellow line shows the 30-year average precipitation the site gets and the light blue line is the 30-year average snow water equivalent.



Left: The Squaw Valley SNOTEL . The current snow water equivalent for this water year is around 37 inches, while average Is near 19 inches. This puts the current snow water equivalent at 194% of normal.

Below: The Lobdell Lake SNOTEL. The current snow water equivalent for this water year is around 17.5 inches while the average is near 6.5 inches. This puts the current snow water equivalent at 269% of normal.





Weather Humor Corner

Gary demonstrates his new no-shovel driveway.

National Weather Service, Reno, NV

National Weather Service, Reno
2350 Raggio Parkway
Reno, NV 89512

Phone: 775-673-8100
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Top 10 Weather Events, Continued from page 6

5. July-September, Fire Activity Much Below Average. A period of cool and wet weather in late May led to a late start to the 2010 fire season. The first large wildfire did not occur until the final week of July. Most of the season's large wildfires were ignited during the final week of July due to several days of thunderstorms. Fire activity was sparse during the remainder of the summer, with a widespread wetting rain in early October resulting in an early end to the fire season. Total acreage due to large fires in the Reno Forecast Area was only about 27,000 acres.
6. September 27-October 1, Record High Temperatures. Strong high pressure settled over the Great Basin during the end of September into the first day of October, resulting in temperatures surging into the mid to upper 90s over western Nevada, and mid 80s in the Tahoe Basin. This heat wave ended abruptly after the 1st as a strong low pressure and cold front moved through the region.
7. Record Rain in October for Reno. The Reno-Tahoe International Airport reported its wettest October on record with a total of 2.65 inches, easily surpassing the previous record of 2.14 inches from 1945. The majority of the precipitation occurred with two strong storms—one occurring between the 2nd and 4th, and the other on the 24th. The storm on the 24th produced the first snow of the season over the higher elevations of the Sierra.
8. November 19-29–Winter Storms, then Record Cold for Thanksgiving. A series of three cold winter storms between the 19th and 24th produced heavy snowfall in the Sierra, with totals of 5 to 8 feet near the Sierra Crest, 2 ½ to 5 feet in the Tahoe Basin, and up to 2 feet in northeast California west of highway 395. In lower elevations of western Nevada and northeast California, snowfall totals ranged from 3 to 6 inches, with locally up to 10 inches in the foothills of Douglas county. After this series of storms, a very cold air mass moved into the region for the Thanksgiving weekend. Several locations, especially in the Sierra and eastern California, set record lows with temperatures well below zero. In western Nevada, low temperatures were generally in the single digits to lower teens, with some colder locations dropping below zero.
9. December 17-19, Heavy Snow and Rain A powerful low pressure brought widespread heavy precipitation to the region. Snow fell in lower elevations on the 17th, yielding 4-8 inches across much of Reno, with up to a foot in portions of Carson City. Deep tropical moisture entrained into this storm produced rising snow levels up to near 7500 feet at times during the 18th and 19th. Storm total snowfall in the Sierra above 7000 feet ranged from 4-8 feet, with up to 13 feet at Mammoth Mountain in southern Mono county. At lake level, snowfall totals ranged between 1 and 3 feet although the precipitation changed to rain at times. In lower elevations, precipitation totals ranged from 1 inch to over 2 inches in the Reno-Carson City areas. Urban and minor small stream flooding occurred in parts of western Nevada, with a few road closures due to mud slides in higher elevations.
10. December 28-29, Heavy Snow with Strong Cold Front. The year ended with another strong winter storm, which produced 2 to 4 feet of snow in the upper elevations of the Sierra, and 1 to 2 feet at lake level. In lower elevations, sharply colder temperatures arrived by the morning of the 29th with up to 4 inches of snow. By the end of 2010, snowpack and precipitation totals in the Sierra so far this winter season were between 200 and 250 percent of normal.